

Highlights

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Washington SCIENCE TRENDS

Dear Sir:

NAVY VANGUARD PROGRAM will be continued and probably expanded in next few months despite widely published reports that it is about to be scrapped. The remaining Vanguard launching vehicles and satellites, along with some key Navy technical personnel, will soon be transferred to the jurisdiction of the new "civilian" National Aeronautics and Space Administration. Vanguard advocates have convinced the NASA that their rocket, despite its troubles, rates as the most efficient and economical in the U. S. arsenal.

Last week's Vanguard firing attempt was cut off a fraction of a second before launching due to valve or igniter difficulties. An explosion was prevented by a newly installed "fail-safe" system such as that used in the Atlas ICBM. A new attempt will be made early this week, depending upon range availability at Cape Canaveral.

SEASONAL TEMPERATURE CHANGES appear to be showing up in information being telemetered back by the sole test Vanguard to orbit. Up to late last week the bird had flown some 66 million miles and its solar batteries were still performing perfectly. Under NASA control orders are expected to go out for additional Vanguard components and satellites, to be used together, or in combination with Jupiter, Thor, Titan and other systems.

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MISSILE NOTEBOOK: The Air Force will soon award its assembly and testing contract for the solid fuels intercontinental Minute Man weapons system...The decision has been made to continue with development of the Titan ICBM, although at a slower pace than originally anticipated...The Titan may find its major mission in advanced space projects, rather than as a prime military weapon. There have been proposals that Titan, a Martin Co. project, be cancelled completely -- but it was decided that the Air Force investment in the missile was too heavy to be lost without some return. A slowed down Titan program means increased reliance on the Atlas, produced by Convair Division of General Dynamics.

BRITAIN'S RADIO-TELESCOPE at Jodrell Bank should receive some U. S. financial assistance, according to staff members of the House Space committee. The 250-foot steerable dish is the largest in the free world and will play a key role in future spaceflight and astronomy. One major project, soon to be announced: A radar-type probe of the Planet Venus.

The Congressional staffers told Washington Science Trends they were concerned to learn that Prof. A.C.B. Lovell, director at Jodrell Bank, needs over a quarter-million dollars to meet fixed debts and some \$30,000 to \$40,000 for current operating expenses.

THE SUGGESTION IS BEING MADE that the U.S. Government might contribute a part of these funds as a gesture of appreciation for the use of the telescope facilities in connection with American lunar probe projects. Dr. Lovell asked for no payment, and received none. Funds might come from the Pentagon's Advanced Research Projects Agency, NASA or various non-governmental foundations or institutions.

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LUNAR PROBES might pave the way to solar probes, according to R. P. Haviland, a General Electric Co. engineer, closely associated with U.S. satellite programs. He suggests that the probe vehicle could be guided near enough to the moon to take advantage of its orbital speed, and by a "crack the whip" effect journey toward the sun.

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U.S. ARMY SOLAR FURNACE goes into operation at Natick, Mass. on Sept. 30 and a two-day symposium on solar energy will mark the occasion. The device is said to be capable of producing short pulses of extremely intense heat, in the range of 5000 degrees Fahrenheit. It will be used for preliminary testing of materials for protection of the soldier against thermal effects of nuclear and other weapons.

The furnace, largest in the nation, was developed by the Quartermaster Corps and fabricated by three prime contractors: American Optical Co., Southbridge, Mass.; D. S. Kennedy, Cohasset, Mass. and Silver-Troy Corp., Newark, N. J.

MAJOR COMPONENT is a heliostat, bearing 355 optically adjusted mirrors in a single reflecting surface. Fixed beams of sunlight are beamed onto a spherical concentrator some 96 feet away. Each of 180 concave rectangular mirrors on the concentrator are adjusted so that a single intense beam is focused into a four-inch test area. Designers claim that the use of multiple spherical mirrors offered great dollar savings over the traditional continuous-surface mirror.

MEDICAL NOTEBOOK: Public Health Service says its latest tests for presence of radioactivity in milk shows amounts "well within" permissible levels despite after-effects of U.S. and Russian nuclear testing programs...The Food and Drug Administration says that it must be satisfied with test results before approving any new food additive for animals or humans...FDA investigators are now cracking down on promotion of vibrators as weight reducers or disease cure-alls and have also halted health claims by an air-filtering vacuum cleaner manufacturer.

Reserve officers of the U.S. Public Health Service are being asked to join a Reserve association which has been operating on an informal basis for some 10 years. The campaign is based on the need for faster exchange of information concerning advances in public health and and problems of Civil Defense.

MORTALITY STATISTICS for 1957 may add to the smoking-lung cancer controversy, as well as the dispute over radiation effects. The figures show important increases in deaths from lung cancer, Leukemia and heart disease.

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PRIVATE INDUSTRY will be asked to participate in next Summer's American exhibit of science, technology and culture in Gorki Park, Moscow. An agreement just signed provides for a similar exhibit by the Russians at the New York Coliseum. Both governments agreed that such displays "are an effective means of developing mutual understanding." The Russians recently cancelled similar plans for an exchange of Atomic Energy exhibits.

One day after the State Department announcement Army Research Chief Lt. Gen. A.G. Trudeau, charged that industrial snooping is a major Russian weapon. He flatly declared that "the advanced state of Soviet Technology today is due more to Soviet success in espionage and subversion than it is to their scientific apparatus, good as it is."

Government scientists, back from IGY meetings in Moscow, say their Russian counterparts showed them instrumentation adapted without change from devices developed for the Vanguard. The Reds flew the instrument packages in Sputnik III, with excellent results.

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The 1958 issue of the Directory of the American Council of Independent Laboratories will be available without charge October 1. Some 500 different services in testing and inspection and applied research performed by leading independent laboratories are listed. Requests, on company letterheads, go to Dr. Harold M. Dudley, Exec. Secy., 4302 East-West Highway, Washington 14, D. C.

RESEARCH CHECKLIST

() New Photo process accidentally discovered by an Air Force contractor is said to be capable of making usable prints of over-exposed or foggy negatives. Dr. James LuValle, Technical Operations, Inc., Arlington, Mass. welcomes written queries on the techniques involved.

() Nuclear Reactor explosion possibilities are being tested at Stanford Research Institute, Menlo Park, Calif. with such odd devices as an old cross-bow, a Winchester Rifle, and line-throwing marine guns. They are helping to determine what would happen if control rods were to be suddenly ejected from the reactor core. With the data obtained, designers of a reactor shield hope to provide a container that is adequate but not excessively massive.

() New Starch derivative developed by Agriculture Dept. Research and Development, Peoria, Ill. said to hold promise for a variety of industrial applications, ranging from oil-well drilling muds to cosmetics. A major potential use of the new cross-linked dicaroxyl starch is as a thickening agent in various paste-like products such as those used in production of paper, paints, textiles and food products.

() Wind Tunnel tests currently being carried out by Goodyear Aircraft at Akron, Ohio on "Convoplane" concept uses two large rotors in a combined wing-fuselage area for motive power. Engineers assigned to the Army studyproject believe the craft can achieve transition from forward to vertical flight by a change in direction of air flow.

() Aural Reading Machine developed by Battelle Memorial Institute, Columbus, Ohio under Veterans Administration contract, translates normal printed matter into patterns of musical tones similar to chords played on an organ. Trained users of the portable device should ultimately attain a "reading" speed of from 15 to 30 words per minute. Researchers hope that eventually such devices can produce speech-like sounds and perhaps ultimately "machine English".

() Airplane Crash Fire-Fighting under study by Engineering Chemistry Branch, U.S. Naval Research Laboratory, to develop replacement of ordinary grade commercial sodium bicarbonate, long used for extinguishing fires involving flammable liquids and gases. Tests show that potassium bicarbonate is superior and further development looking toward a foam-compatible, dry chemical powder for service use is recommended.

Cordially,

Arthur Kranish, Editor

